

Genderlectal Variation in Korean?: An Empirical Sociolinguistic Study of Utterance-Final Tones*

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This paper empirically examines genderlectal variation in sentence-final boundary tones claimed by Lakoff (1975) on the basis of Seoul Korean data. Two studies are conducted in the research focusing on declaratives, the most frequently used sentence type, and additionally exclamatories. Study 1 is conducted based on six speakers' (3 males and 3 females) reading of 33 constructed dialogues, while study 2 examines recordings of three radio talk-shows cohosted by a male and a female. The two studies commonly found a clear difference in the use frequency of complex tones; the females produced a notably more frequent use of complex tones than the males, supporting Crystal's (1971) claim. However, no cross-gender difference was revealed in the inventory of tones. Shared attitudinal meaning of complex tones are proposed and their sociolinguistic implications are also discussed.

Key words: genderlects, intonational variation, complex tones, attitudinal meaning

1. Introduction

It has been claimed by quite a few researchers that men's and women's speech are not identical in more than one respect. For instance, Lakoff (1975), a pioneer of genderlect research along with Key (1975), suggested the following characteristics of women's speech: larger vocabulary in areas of female interests such as color, dress, and cooking; a more common use of adjectives like *divine*, *charming*, and *cute*; the use of

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sentences whose meaning is rather ambiguous, especially certain types of tag questions and hedged statements; a more frequent use of the emphatic adverb 'so'; the tendency to produce more grammatical and polite speech; a less frequent use of jokes; and, finally, the use of more diverse and rather peculiar intonational tones.

This paper is an empirical examination of Lakoff's last alleged feature of female speech, i.e., female intonational characteristics. According to Lakoff, women use intonational tones (boundary tones, to use a more technical term (Beckman & Pierrehumbert, 1986)) quite different from those used by men. She notes that the more a female speaks like a woman, the more distinct tones she tends to produce. Another suggestion Lakoff makes is that women's speech involves more diverse intonational patterns than men's. She proposes that women use more various and peculiar tonal patterns to attract attention from listeners, because they are aware that they do not command much respect from males and their same-sex peers, and thus use somewhat unique kinds of intonation as attention-getters. A similar claim is made by Crystal (1971), who notes that women use intonational patterns somewhat different from the ones adopted by men. He especially claimed that women tend to use complex tones (tones like LH, HL, LHL as opposed to simple tones such as L or H) more frequently than male speakers.

This research undertakes an empirical examination of the above claims based on Korean data. Two studies are conducted in this research. Study 1, a more controlled study, is conducted on the basis of the readings of constructed dialogues by three male and three female speakers, while study 2 examines possible genderlectal differences in broadcasting language as reflected in talk shows cohosted by a male-female pair. The two studies share the same goals, i.e., they examine whether men and women use sentence-terminal tones differently, specifically 1) whether female speakers use different sentence-final tones, 2) whether they use more diverse tones, 3) whether they use more complex tones. One notable difference between the two studies is that the subjects of study 1 read identical sentences, while study 2 is not based on such identical productions.

The scope of this research is limited to gender differences in the use of sentence-final boundary tones, hence not including sentence-medial tones, which are often suggested by researchers as playing a less significant role than the former in the speakers' expression of attitudinal meaning

towards the addressee.

This paper is organized as follows: section 2 provides an introduction of previous studies that examined sex differences in intonational tones. Research materials and methods of study 1 are described and its results are discussed in section 3. In the following section, the materials and research methods of study 2 are presented and its results and implications are discussed. The overall sociolinguistic implications of the results obtained from this research are discussed in section 5, followed by conclusions in section 6.

2. Background

There have been some previous studies that examined Lakoff's claim that women use intonational tones different from and more various than those used by men. Edelsky (1979) had interviewers ask students questions whose answer only the students are supposed to know, i.e., questions about their favorite color or birthplace. Sentence-ending tones were analyzed into four categories: straight rise, fall, fall-rise, and flat. No significant difference, however, was observed between the two genders: straight rise tone in statements, which was claimed by Lakoff (1975) to be a female intonational feature, rarely occurred in the speech of both sexes.

The study reported in McConnell-Ginet (1983) produced different results. In her study questioners asked subjects (before a campus landmark) the name of a building. McConnell-Ginet reports that women used two types of tones significantly more frequently than male subjects: straight rise and fall-rise, the result (especially of the latter tone) supporting Crystal's claim that women use more complex tones than men. Pellowe and Jones's (1978) study of British Tyneside speech also found a cross-gender difference: a larger proportion of rising tones was observed in females' statements than in males', where more falling tones were found than rising tones. The females' tone inventory was also found larger than the men's in their study.

Garcia's (1987) study was based on answers of Californian speakers to survey questions asked on the telephone. Four questions were asked about one's favorite color, the capital of California, the capital of Nevada, a neighboring state, and one's opinion on a new California State lottery. Analyzed were the responses of 25 male and 25 female speakers to these

questions. The analysis found three types of terminal tones in the respondents' answers: rising, falling, and flat. No significant difference, however, was found in the frequency of each tone between men and women, failing to support Lakoff's claim. Past investigation on cross-gender difference in sentence terminal tones, accordingly, have produced mixed results.

The genderlect studies introduced so far, however, show serious limitations on their base of research. After observing that most of empirical genderlect studies have their basis on the speech of middle-class white women of America, Coates (1990) suggests that genderlect research needs to be conducted on a wider base of data from various speech communities, in order to reach more confident conclusions about women's language.

The current research can have value in this respect, since its speech data is from a community where social role and status differences between the two sexes are generally believed to be clearer than in North American or European countries, and which is, thus, considered more likely to reveal genderlectal differences. It is also considered that if the female intonational features claimed by previous research are not attested in this research, other studies that examine genderlects of Western societies are less likely to find them.

On the basis of the findings and results of previous studies, the present research undertakes an investigation of the alleged differences in utterance-final boundary tones between males and females in two studies, which are described below.

3. Study 1: Genderlectal Differences in Read Speech?

The purpose of Study 1 was to examine whether there were any cross-gender differences in subjects' use of sentence-ending tones in their read speech. An advantage of read data over spontaneous speech is that direct comparisons across speakers are possible since the subjects produce identical sentences.

3.1. Materials and Readers

The focus of this study was placed on sentence-terminal tones of

statements, i.e., declaratives performing a speech act of assertion. There were two reasons why this type of utterance was chosen as the object of the study. First, statements are the most frequently found sentential forms in our daily conversation comprising a majority of our utterances and, accordingly, a sufficient number of tokens could be obtained for the purpose of this research. Second, since statements account for a majority of our utterances, it was deemed that if any gender differences in intonational tones are observed in the language examined, they are the most likely candidate. It was also considered that past research (Edelsky, 1979; Garcia, 1987) was conducted focusing mostly on this utterance type.

For this study, 16 four-turn and 17 three-turn dialogues were constructed with two conversers (or conversing readers) in mind (see Appendix). The number of all sentences were 115 $((16 \times 4) + (17 \times 3) = 115)$. Most of the constructed sentences were statements, the focus of this study, but they also include a small number of questions, exclamatories, propositives, and hortatives, whose inclusion was necessary to make the constructed dialogues more natural and diverse. The sentences were constructed with sentential endings usually associated with *hae* style closing each sentence; endings of *hae* style are, in general, used by the speaker to express 'casualness' (or informality) and 'a lesser degree of respect' (and thus 'friendliness') to the listener.¹⁾ My idea was that this type of endings could help make dialogues more spontaneous and more lively, and also that a general agreement of style and speech level across the sentences could minimize effects of sentential endings on the tones which the reader will choose, thus enabling this research to isolate gender effects on boundary tones better.

Three male and three female native speakers of standard Korean were chosen as subjects of this study. The six subjects were all born and raised in Seoul. The subjects were all students of the same college with similar socio-economic background, i.e., all of them come from a middle class family. They were chosen with reference to student information cards

1) According to many Korean grammarians (e.g., Seo, 1989; Nam and Ko, 1988), there are six different styles of listener honorification in standard Korean. These styles are different from one another in degrees of formality and respect expressed by the speaker to the listener. Four styles are considered 'formal' and the remaining two, 'informal'. Two formal styles expressing 'more respect' are *hapsyo* and *haa*; two styles showing 'formality' and 'less respect' are *hage* and *haera*. Two informal styles, *haeyo* and *hae* express 'more respect' and 'less respect', respectively.

kept by the college with the school's consent. The students were all in their early 20's and naive to the purpose of this study.

3.2. Procedures

Readings were recorded at the sound-treated booth of the Hankuk University of Foreign Studies. The subjects read the dialogues with the author as a conversational (or reading) partner. Each of the dialogues was typewritten on the card. The cards were randomized. The readers had one practice reading session, which was devised to familiarize them with the content of the dialogues. Then two actual reading sessions followed. The subjects read (B) sentences, while the author read (A) (cf. the Appendix). The subjects were asked to read the dialogues as naturally as possible as if they were conducting real conversation with a close friend.

The sentences read by the subjects were digitized using Speech Analyzer version 1.5. developed by SIL (Summer Institute of Linguistics). For some dubious cases, Wincecil version 2.2., another SIL acoustic analysis program, was also used for a comparison of f0 contours produced by the two softwares.

Sentence-ending boundary tones were analyzed mainly on the basis of f0 contours extracted using the option of 'auto pitch', a smoothed version of the pitch plot. If there was a difference between the author's auditory perception of a given utterance-terminal boundary tone and an f0 contour of 'auto pitch', a curve of 'raw pitch', the unmodified pitch plot of fundamental frequency, was again extracted and examined as to whether it agrees to aural perception. If there was such an agreement, the boundary tone indicated by the f0 contour of 'raw pitch' was judged as correct.

method of defining different tones

It is conjectured that speakers of any language choose boundary tones (probably unconsciously) affected by several factors. For the case of Korean, Lee (1990, chapter 3) suggested with good insight that the following four are primary constraints determining speakers' selection of sentence-final tones:

1. What is the sentence type? (declarative, interrogative, imperative,

hortative, etc.)

2. What sentence-terminal ending is used in the sentence?
3. What is the illocution of the sentence? (what speech act is performed by the sentence?)
4. What attitudinal meaning does the speaker want to convey to the listener? (e.g., coolness, humility, friendliness, etc)

My ideas about Korean utterance-final tones are essentially in line with Lee's (though it needs to be pointed out that factors of sentence type and sentence-terminal endings are not independent, since sentence types are mostly indicated by different endings in Korean). Results obtained from the current research are, accordingly, interpreted primarily based on Lee's ideas given above.

The number of sentences designed to be read by the subjects, i.e., (B) sentences, were 66. There were altogether 132 sentences for analysis because the subjects read the sentences twice. The sentence type in focus of this study was, as noted earlier, the declarative sentence (performing a speech act of assertion). Most (58 out of 66) of the constructed sentences were, accordingly, statements. The remaining 8 included one hortative, three yes/no questions, two wh-questions, one propositive, and one exclamatory.

It was not an easy task to set up the inventory of terminal tones of statements and establish the boundaries among them.²⁾ Jun (1996) suggests that Korean has at least nine boundary tones: L, H, LH, HL, LHL, HLH, HLHL, LHLH, LHLHL. Her classification of boundary tones does not include a mid level tone as a tonal component, the terminal tones consisting only of L and H elements. In Jun's system, tonal components are categorized as either H or L in relative terms compared with the pitch level of the previous tone.

Lee (1990), meanwhile, provides a more traditional description of Korean boundary tones. He proposes, as the inventory of Korean terminal tones, three 'simple' tones (low, mid, high) and six 'complex' tones: low fall, high fall, full rise, low rise, fall-rise, and rise-fall.³⁾ In Lee's system, low

2) It is to be noted that in Korean, sentence-terminal tones are realized at the final syllable of sentence endings, not reaching over more than one syllable.

3) Simple tones are not to be confused with level tones. Lee (1990, p. 124) characterizes the low and the mid, for instance, as "...usually pronounced slightly lower than the preceding

fall and low rise are distinguished from high fall and full rise, respectively, in that the former's f_0 movements do not reach the extremes of the speaker's voice range but around the middle point. Lee's low fall and high fall are, hence, both described as HL in Jun's system, and low rise and high rise are simply labelled LH in a similar fashion. Lee's fall-rise and rise-fall are very similar to Jun's HLH and LHL, respectively.

The system of terminal-tone description used in this research takes on characteristics of both the systems. My system is similar to Lee's (1990) in that it also acknowledges the mid tone. With F as the lone exception to be discussed, all the tones in my system are composed of L or M or combinations of two or more of these basic elements. (H tone is needed in the description of Korean sentence-final tones but not for this research since the sentence type of questions is not analyzed here.) In notation, however, my system is like Jun's (1996) in that it uses just capital letters of element tones.

The inventory of tones adopted in this research is given in Table 1. The tones' meanings proposed by Lee (1990) and the author are also given in the third and fourth columns of the table, respectively. The present study uses the label F for a description of the f_0 contour similar to that of ML but with a more steep slope: the f_0 peak of F tends to be somewhat higher than that of ML (but not at all as high as H of questions) and the lowering of f_0 from the peak is realized in a more drastic way, thus making the slope grade sharper. The need to distinguish F from ML comes from the two providing very distinct attitudinal (or interactional) meanings despite having similarities in the shapes of their f_0 curves; it is presumed that F makes an utterance sound decisive and assertive, while ML helps an utterance to sound soft and friendly. A somewhat ambiguous boundary lies between L and M in that even in statements there can be various degrees of rise from the preceding syllable to the sentence-ending one. Only a clear (i.e., significant) rise was analyzed as M, which could produce meanings of 'unfinishing' in some contexts and 'cooperative' or 'cheerful' in others; a minimal degree of rise as well as no noticeable f_0 change and any degree of (simple) fall from the previous syllable was analyzed as L rather than M.

syllable..." and "...always pronounced a little higher than the preceding syllable...", respectively, which means that the low is mostly falling, while the mid is rising.

As pointed out by a number of researchers (e.g., Garcia, 1987; Britain, 1992), meanings carried by boundary tones are not one and unique but multiple and various. Intended meanings of tones can be very variable according to contexts where utterances are made. Possible meanings of L suggested by previous research, for instance, are 'confident', 'authoritarian', 'masculine', 'aggressive', 'decisive', 'assertive', among others. All these meanings can come from this tone in certain linguistic or situational contexts. Effects of utterance-final tones, apparently, interact delicately with literal meanings of utterances, controlled amplitude of utterance-production, pitch and voice color manipulations, and so on. Accordingly, it should be noted that the proposed representative meanings of tones given in the table are only provisional and from the author's informal observations. The listed meanings of each tone should not be taken as exhaustive either.

Table 1. Terminal Tones of Statements and Their Representative Attitudinal Meanings Proposed by Lee (1990) and the Author

Tones	Tone Type	Lee (1990)'s Meaning	My Proposed Meaning
L	simple	definitive and cool	cool, assertive
M	simple	blunt or humble	unfinishing, cooperative
LM	complex	patronizing	friendly, sociable
ML	complex	definitive but friendly	friendly, warm
F	complex		assertive, aggressive
LML	complex	impatient or annoyed	(casually) friendly, warm
MLM	complex	(more) patronizing	(casually) friendly, sociable
MLML	complex		(playfully) friendly

Among the 8 tones listed in Table 1, those observed in the statements of study 1 read by the subjects were 7: L, M, LM, ML, F, LML, and MLM (MLML appeared only in the data for study 2). The first two tones are identical with the low and the mid of Lee's, respectively. LM, ML, LML, and MLM are very similar to his low rise, low fall, rise-fall, and fall-rise, respectively.

3.3. Results

The subjects' production of the statements constructed for this study produced the results given in Table 2. I will examine the results taking

on the three questions raised earlier, i.e., 1) whether female speakers use sentence-terminal tones different from those used by males, 2) whether female speakers use more diverse tones than males, 3) whether female speakers use complex tones more frequently than males.

Table 2. Subjects' Use of Boundary Tones in Statements in Study 1

	M1	M2	M3	M total	F1	F2	F3	F total
L:	33	33	31	97	51	29	39	119
M:	51	64	79	194	37	33	24	94
F:	2	9	3	14	7	3		10
LM:	16	8	3	27	11	24	48	83
ML:	13	2		15	10	27	4	41
LML:	1						1	1
Sum:	116	116	116	348	116	116	116	348

NB: M and F in the first row of this table are abbreviations of male and female, respectively.

First, as for the first question, the female subjects did not use totally different kinds of sentence-ending tones from the males' boundary tones. As shown in the table, male and female speakers essentially had the same inventory of sentence-terminal boundary tones. An affirmative answer cannot be given to the second question either. One male (M1) produced six different tones; one male (M2) and three female (F1, F2, F3) speakers five distinct tones; one male speaker's (M3) tone inventory involved only four. Thus the average numbers of boundary tones adopted for ending the statements were identical between the sexes.

I will now examine the third question. Complex tones are the ones which are not simple but which have a changing quality within a syllable. Among the boundary tones shown in Table 2, F, LM, ML, and LML are such ones.⁴⁾ Since triple tones (such as LML and MLM) are not commonly produced in natural speech and only 2 LML tones were observed in the data, no meaningful remark can be said about this tone type. Three male and two female speakers used F to mark sentential boundary intonationally, the men producing it slightly more than the women (14 vs 10 in sum). There was a clear difference between males

4) F is, as noted previously, a label given to pitch contours similar to ML in shape but with a higher peak and a steeper grade of fall from the peak.

and females in their frequency of producing LM and ML tones. Women produced LM and ML visibly more frequently (124 as opposed to men's 42).

In sum, we can give a positive answer to question (3), but not to the previous two questions. The female subjects made a clearly more frequent use of complex tones than the males (14.6% (57/348) vs. 38.8% (135/348)). The difference was found statistically significant by a chi-square test based on observed numbers of simple and complex tones of men and women. ($\chi^2=43.759$, $p<.001$, $df=1$). A simple generalization, however, cannot be made about simple tones: the females produced L more often than the male subjects, while M was produced much more commonly by the males.

results of a multivariate analysis

Lee (1990), as noted earlier, suggested that different sentential endings might affect speakers' choice of boundary tones. Another potential constraint that can influence tonal selection is effects of discourse or textual context where the choice is made. Here in this study conversational turn, i.e., whether a tone appears in beginning (first) turn, middle (second in three-turn dialogues; second and third in four-turn dialogues) turn(s), or finishing turn of conversation was recognized as a possible textual constraint.⁵⁾

To examine the exact nature of gender effect, and possible influence of sentence endings and textual context on the selection of sentence-terminal boundary tones, multinomial logistic regression analysis, a multivariate method, was performed with the design described below. This analysis is usually adopted to examine effects of independent factor groups on values of the dependent when groups of factors are more than one and values of the dependent are categorical and more than two.

Tones of LM, ML, and LML were collapsed as complex tones to examine how independent factors influence this group of tones as a whole; the F tone was not included here as a member of complex tones

5) The categorization of discourse context in terms of conversational turns alone is, as one reviewer pointed out, an oversimplification; i.e., other contextual features are conjectured to affect the choice of sentence-final tones as well. However, other contextual factors (such as aspects of conceptual and cotextual contexts) are not neatly categorizable enough to be subject to statistical analysis.

because it, as mentioned earlier, carries attitudinal meanings very different from those shared by other kinds of complex tones (e.g., friendliness; cf. Table 1) and thus does not form a natural class semantically with them, though it does in shapes of f_0 curves. The groups of factors listed in Table 3 were included in the statistical model.

Table 3. The Dependent Variable and Independent Variables (potential constraints) Considered in the Multinomial Logistic Regression Analysis.

variables	variable type	factors
boundary tone	dependent	1. low 2. mid 3. complex
gender	independent	1. male 2. female
sentence ending	independent	1. $\{n\}te$ 2. lae 3. a 4. ta
textual context	independent	1. beginning turn 2. middle turn(s) 3. finishing turn

The number of statements' sentence-final endings observed in the constructed data were 11: $-ta$, $\{n\}te$, $-a$, $-eo$, $-ya$, $-ji$, $-lae$, $-tae$, $\{h\}ae$, $-la$, and $-ko$.⁶⁾ Among these, $-ta$ and $-la$ are allomorphs of the same morpheme, the latter appearing after word-medial morphemes $-teo-$, $-li-$, and $-ni-$. The endings $-a$, $-eo$, and $-ya$ are also allomorphs of the same ending, the first two are chosen by the Korean rule of vowel harmony and the third appears on the surface when the sound preceding the ending is a vowel, i.e., through the process in which y is inserted between two vowels to avoid vowel hiatus. The endings $-lae$ and $-tae$ are variants of the same morpheme which indicates the source of the speaker's information as coming from another person. Essentially seven

6) The first segment of the ending $\{h\}ae$ (i.e. h) is actually from the stem; the morphological analysis of *haengpokhae* "happy", for example, should be *haengpokh-ae* rather than *haengpok-hae*. However, the final syllable of this word, to which a boundary tone is linked, is *hae*, not *ae*. Accordingly *hae* was chosen as the analysis unit rather than *ae*. The ending $-ko$ is phonetically realized mostly as [ku].

different endings were, thus, observed in the data. These endings did not show even distribution, either. Since, especially, occurrence frequencies of *-ji*, *-hae* and *-ko* were too small and because, for this, their inclusion to the statistical model cannot lead to meaning results, they were excluded in the analysis. The last factor of each variable (both dependent and independent) listed in Table 3 was used as a reference category (or reference factor) in the regression analysis.

Table 4. The Results of Likelihood Chi-square Tests^a

effect	-2 loglikelihood of reduced model	chi-square	df	sig.
intercept ^b	163.712	.000	0	
discourse	202.278	38.566	4	.000
gender	243.256	79.544	2	.000
ending	193.443	29.731	6	.000

NB: ^aThe chi-square statistic is the difference in -2 loglikelihoods between the final model (incorporating every constraint) and a reduced model. The reduced model is formed by omitting an effect from the final model.

^bIntercept is sometimes termed constant, a quantity that does not depend on potential constraints examined.

Results of the regression analysis are given in Tables 4, 5, and 6. The three potential constraints were all found to have a statistically meaningful effect on speakers' choice of sentence-final tones. Among these, however, gender effect was the most significant, followed by textual context and sentential endings. The statistical model with gender omitted produced the poorest fit to the data in terms of chi-square and loglikelihood values as shown in Table 4 (the larger the values are, the poorer the statistical model fits the data), which means that the factor of gender is the most important among the three in explaining variation involving utterance-final tones.

Based on the logistic regression model coefficients (*b* numerics given in Table 6), predicted probabilities of speakers' choice of sentence-terminal tones were calculated (Table 5). These probabilities can produce expected frequencies of each tone in each environment based on the given statistical model. They show how prevalent the gender effect is across different textual contexts and endings. Special attention should be paid to the last column, complex tones: all the probabilities of females are found to be considerably bigger than males', meaning that the female gender

has an independent effect to cause to produce complex tones.

Table 5. Predicted Probabilities of Occurrence of Tones in Different Textual and Ending Contexts

	Low	Mid	Complex
MALE			
Beginning Turn			
<i>te</i>	.144	.639	.218
<i>lae</i>	--	--	--
<i>a</i>	.087	.838	.075
<i>ta</i>	.092	.751	.157
Middle Turn(s)			
<i>te</i>	.457	.357	.186
<i>lae</i>	--	--	--
<i>a</i>	.341	.580	.157
<i>ta</i>	.346	.496	.158
Finishing Turn			
<i>te</i>	.446	.408	.146
<i>lae</i>	.272	.521	.207
<i>a</i>	.315	.626	.059
<i>ta</i>	.328	.551	.121
FEMALE			
Beginning Turn			
<i>te</i>	.147	.235	.617
<i>lae</i>	--	--	--
<i>a</i>	.145	.505	.349
<i>ta</i>	.116	.339	.545
Middle Turn(s)			
<i>te</i>	.415	.117	.468
<i>lae</i>	--	--	--
<i>a</i>	.443	.271	.286
<i>ta</i>	.539	.185	.455
Finishing Turn			
<i>te</i>	.448	.147	.405
<i>lae</i>	.272	.182	.554
<i>a</i>	.448	.320	.232
<i>ta</i>	.382	.230	.388

NB: Ending *lae* does not appear in the beginning and middle turns of the constructed dialogs, which is why probabilities are missing in those cells.

Table 6. Predictors of Sentence-terminal Tones: Multinomial Logistic Regression of Speakers' Boundary Tone selection

	L tone		M tone	
	b (se)	exp(b)	b (se)	exp(b)
male	1.017 (.268)**	2.764	2.042 (.256)**	7.703
beginning turn	-1.533 (.364)**	.216	5.013E-02 (.307)	1.051
middle turn(s)	-.220 (.310)	.802	-.376 (.322)	.687
-te	.117 (.529)	1.124	-.490 (.503)	.612
-lae	-.725 (.535)	.484	-.592 (.530)	.553
-a	.673 (.421)	1.961	.844 (.408)*	2.325

- NB. 1. The reference category of 'low and mid tones' is complex tones; that of 'male' is female; the reference factor of 'beginning and middle turns' is finishing turn; that of '-te, -lae, and -a' is -ta.
2. *b*, *exp(b)*, *se* refer to coefficient, exponent of coefficient, and standard error, respectively.
3. *significant at the .05 level; **significant at the .001 level

There were some different patterns of tonal appearance across three different turns of conversation. The percentages of three tones (in the order of L, M, and C) occurring in distinct turns were 12%, 59%, 29% for beginning turn; 39%, 40%, 21% for middle turn(s); 38%, 40%, 22% for final turn; especially M (and C to some degree) was found more frequently in beginning turn than elsewhere. In the statistical analysis where the test was performed with complex tones and finishing turn as reference categories (see the results in Table 6), only the difference in the ratio of low tone/complex tones between beginning and finishing turns was found to be significant. This difference is also visible in the ratios of raw percentages given above (i.e., 12%/29% vs. 38%/22%).

Even patterns of tonal appearance were not observed across different sentential endings, either. Endings -te, -lae, -a, and -ta were associated with the three tones (in the order of L, M, and C) 25%, 37%, 38%; 27%, 34%, 39%; 33%, 50%, 17%; 29%, 42%, 29%, respectively. Complex tones were, overall, more linked to -te and -lae than -a and -ta. In the results of the regression analysis shown in Table 6, only the ending -a showed a significant difference in the ratio of mid tone/complex tones from the reference category -ta (i.e., 50%/17% vs. 42%/29%).

3.4. Discussion

I will now interpret the results obtained from study 1 and their possible implications. It is clear from the results that the female subjects of study

I do not use boundary tones totally or radically different from those used by the males. This result does not support Lakoff's (1975) suggestion that women use rather peculiar intonational tones not observed in male speech. Nor the claim by some researchers that females' inventory of intonational tones is larger than men's is supported by the results of study 1.

However, Crystal's (1971) claim that women tend to use complex boundary tones more often than men is well supported by the findings of study 1. Crystal's claim is also in line with McConnell-Ginet's (1983) suggestion that women show more frequent pitch shifts, because complex tones are the ones with inherently more pitch shifts than simple tones. Crystal's claim, however, may need to be somewhat refined -- at least in the case of Korean. The male speakers of Study 1, as shown in Table 2, produced F slightly more often than the females (14 vs 10 in sum). This result was anticipated because F and ML were distinguished not only by shapes of their f0 contours but also by different attitudinal meanings the two tones carry, i.e., decisiveness or assertiveness of F vs. softness or friendliness of ML (refer to Table 1). Therefore it may be that not all complex tones are adopted more by females, F generally expected to occur more frequently in male speech.

One thing that is noteworthy is a dominant use of M by males over females (194 vs. 94) in study 1 (see Table 2). Some researchers have associated rising tones with lack of confidence or indecisiveness. Well-known is Lakoff's (1975) claim that women tend to use the question intonational pattern in statements, which, according to her, marks their uncertainty or lack of self-assertiveness. One possible support for this claim is the result from a subjective reaction test conducted in Edelsky (1979) that the rising tone, defined by the researcher as just rising in relation to the previous level (thus probably including a mid rising tone as well as the high rise), was perceived by the judges to sound more feminine than the fall tone, i.e., L of the current research.

However, Lakoff's line of interpretation of rising tones has been refuted by other works. Bolinger (1964) points out that a single intonational contour can mean several things: e.g., rise-fall-rise can carry some different meanings, i.e., suspense, incompleteness, or complaisance. Ladd (1980) suggests that the high-rise just conveys nonfinality or incompleteness, from which various meanings of tentativeness, doubt, deference, sociableness can be derived.

Along this line, Guy, Horvath, Vonwiller, Daisley, and Rogers (1986) and Britain (1992) suggest that the major function of the high rising tone (HRT) in statements is not the expression of a lack of commitment and confidence as suggested by Lakoff. Their proposed function of the (high) rising tone in English statements, especially in Australian and New Zealandian English, is a marking of positive politeness toward the addressee, seeking verification of the listener's comprehension and also expressing the intent to demand a response and the speaker's continued turn at talk. What these works indicate is that rising tones in statements can be interpreted somewhat differently in different contexts.

Lee (1990) associates M (or the mid rise) in Korean with meanings of bluntness or humbleness. While it cannot be denied that the tone could carry these meanings in some linguistic or situational contexts, I suggest that the meaning of M in the data examined here is rather similar to those of English rising tones mentioned above, i.e., an expression of cooperative attitude toward the addressee and of the desire to continue the dialogue. This claim is, in part, supported by the fact that M (see the third column of Table 5) is predicted to be predominantly found in beginning turns of the dialogues, where the speaker's need to show his/her intent to continue the talk is believed to be stronger. The averages of predicted probabilities of M occurring in beginning, middle, and finishing turns are .743, .478, and .527, respectively, for males and .360, .191, and .220 for females, which indicates that the mid was used most often by both sexes in beginning turns. The male speakers have, probably, adopted M, a marker of incompleteness and cooperative attitude nearly exclusively, while the female speakers opted to use complex tones (which can also serve as a marker of cooperative attitude due to its associated meanings) as well as the mid to express friendliness and warmth additionally. It is suspected that a radical cross-gender difference in the frequency of using M is due to this factor.

No definite conclusion can be reached about the relationship between tones and sentential endings, because not many endings appear in the constructed data and even less were considered in the logistic regression analysis. Only one clear tendency is observed in the data: ending *-a* tends to cause the appearances of the mid more than those of low or complex tones. The raw results indicate that approximately half of the appearances of ending *-a* are associated with the occurrence of M, and that the ending is least linked to complex tones, which is why the ratio

of M tone/C tones of this ending was analyzed as significantly different from that of *-ta*, the reference category (cf. the last row of Table 6).

The explanation of the effect of ending *-a* is difficult to obtain at the moment requiring more research on it. The “observed” effect may be due to the idiosyncratic nature of the sentences and data constructed; one possible candidate is effects of sentential meaning on the choice of tones. The fact that interaction between sentential endings and textual context was found significant by a separate logistic regression analysis comprising the interaction as another possible constraint confounds interpretation of the statistical result regarding this sentential ending. It is also possible that empty cells in the test data shown in Table 5 have affected the results as well.

4. Study 2: Genderlect Differences in Broadcasting Language?

The purpose of study 2 was to examine whether male and female speakers produce different sentence-final boundary tones in non-read spontaneous speech. The focus of the study is, again, an analysis of statements, the type of sentences most frequently produced by speakers in ordinary linguistic and situational settings, but exclamatories are additionally analyzed here.

4.1. Materials

As the material for this study three radio talk shows cohosted by a male and a female were selected. Two hours' recordings of each talk show (since the shows last one hour, two hours' recording means two shows) were used as the data. The three radio talk shows were selected based on these three considerations: 1) whether the two hosts speak both standard Korean, 2) whether the two assume the same or very similar role(s), i.e., whether there exists a balance in power between male and female hosts within the program, 3) whether idiolects of the two speakers sound too deviant from genderlects usually associated with each sex, i.e., whether a male host (or a female host) sounds too feminine (or masculine). It was assumed that intonational differences between the two hosts can be interpreted as reflecting gender differences (though not fully) when their power and roles within the talk show are controlled this way.

An advantage with this type of data over the materials used in study 1 is its closeness to speakers' everyday speech. The titles of the three talk shows were *jigeumeun radiosidae* "Now is the radio age" (JR, henceforth), *yeollin radio* "open radio" (YR, henceforth), and *teukgeup jakjeon* "special operation" (TJ, henceforth). The first show was hosted by Jonghwan Lee and Yura Choi, two famous talk show hosts; the second by Beomsin Park, a famous novelist, and Okgyeong Kim, a voice actor; and the third by Sangcheol Joo and Jia Lee, two news announcers at the Daegu branch of Munhwa Broadcasting Corporation. The dialects spoken by all these hosts were judged as standard or near-standard by the researcher and two other linguists that I consulted with.⁷⁾

4.2. Procedures

Two hours' recordings of each talk show were, as mentioned above, made on the audiotape. The recordings were transcribed into the Korean alphabet. Each sentence in the recordings was digitized using Speech Analyzer (SA) version 1.5. Wincecil version 2.2 was also utilized for an f0 curve examination of some sentences, when aural tonal perception did not match the f0 contour obtained from SA. The 'auto pitch' option was chosen when extracting an f0 curve in the use of SA, but the results of 'raw pitch' option were also referred to in some doubtful cases. The identification of sentence-ending tones was performed relying on the f0 contours extracted using the two softwares.

4.3. Results

The three talk shows were similarly organized: all three had talks between the hosts, among the hosts and a telephone caller, among the hosts and an invited guest; they also had direct announcements from the host(s) to the radio audience and music sections. The texts, accordingly, include some different types of interactions. Though it could be ideal to analyze each of these different kinds of participant interaction separately,

7) Beomsin Park, the novelist, was actually born in Chungcheong Province, one area of Central Korea but a place where a regional dialect somewhat different from Seoul Korean is spoken, but no audible dialectal influence on his speech was perceived maybe because of his extensive exposure to Standard Korean and his long participation in various broadcasting programs from younger age.

limited sizes of the texts and vague boundaries among these kinds did not allow the researcher to do so.

However, one type of discourse seemed to have a clearly different function and style: direct announcements by the host(s) to radio listeners. They include program announcements, song introductions (in music sections), guest introductions, announcements of program sponsors, and monologues of a host at the beginning or end of the program, which all can be considered as kinds of direct conveyance of information to the radio audience. These utterances were different from the other types in that their audience is not direct participants of the program like show-hosts, guests, or telephone-callers, but the general radio listeners. The texts were, accordingly, divided into two general types: announcement type text and the remaining more conversational type.

The sentences in the texts were first divided into declarative sentences, yes/no questions, wh-questions, imperatives, and exclamatories. The numbers of sentences for each sentence type are given in Table 7. Among the declaratives there were a few sentences deemed to perform not a speech act of assertion but speech acts of promise, question, or request. The number of these sentences was so small, however, that they could not be separately analyzed. Thus only statements, i.e., declaratives with the illocution of assertion, were included in the analyses given below. These sentences accounted for approximately 63% of the total sentences found in the data.

Table 7. Numbers of Sentences for Each Sentence Type
Found in the Data for Study 2

	JR		YR		TJ	
	M	F	M	F	M	F
declarative:	104	159	110	110	120	89
y/n question:	21	44	34	28	69	38
wh-question:	15	17	22	9	29	14
imperative:	2	21	4	9	9	3
exclamatory:	10	13	8	13	19	6
Sum:	152	254	178	169	246	150

NB: M and F refer to males and females, respectively.

The way how the hosts of the three talk shows intonationally marked ends of statements are summarized in Tables 8, 9, and 10. I will again

examine these results checking whether they confirm the claims that women use boundary tones different from and more diverse than those used by men, and that females tend to produce more complex tones than males. Since the position of the author is, as expressed in Study 1, that F is associated more readily with males than females in its attitudinal meaning, F is analyzed separately statistically from the other kinds of complex tones.

The results from the show JR is first examined. The female host of JR, who once worked as a TV actress, was generally wordier than her male counterpart, a one-time famous disc jockey. Most of the announcements to radio listeners were made by the female host during the broadcast. She showed a larger and somewhat different inventory of boundary tones, though an imbalance (104 (male) vs. 159 (female)) present between the numbers of the uttered sentences can cast some doubt about this claim. The male host produced L (62% vs 47%) more often than his female counterpart; the two hosts produced comparable frequencies in M (17% vs 20%) and F (5% vs 3%). The female host produced a clearly higher percentage of complex tones (i.e., LM, ML, MLM, LML, MLML) than her broadcasting partner (31% vs. 16%). One thing interesting is that the male ended all the announcement type statements with L.

Table 8. Show-hosts' Use of Boundary Tones in Statements in JR

	(M)			(F)		
	C	A	total	C	A	total
L:	53(57%)	11(100%)	64(62%)	47(42%)	27(57%)	74(47%)
M:	18(19%)		18(17%)	20(18%)	12(26%)	32(20%)
F:	5(5%)		5(5%)	2(2%)	2(4%)	4(3%)
LM:	8(9%)		8(8%)	23(21%)	1(2%)	24(15%)
ML:	7(8%)		7(7%)	10(9%)	5(11%)	15(9%)
MLM:	2(2%)		2(2%)	1(1%)		1(1%)
LML:				7(6%)		7(4%)
MLML:				2(2%)		2(1%)
Sum:	93	11	104	112	47	159

NB: C and A refer to conversational and announcement types, respectively.

Table 9. Show-hosts' Use of Boundary Tones in Statements in YR

	(M)			(F)		
	C	A	total	C	A	total
L:	59(66%)	19(95%)	78(71%)	38(45%)	16(64%)	54(49%)
M:	19(21%)	1(5%)	20(18%)	17(20%)	6(24%)	23(21%)
F:	5(6%)		5(5%)	2(2%)	1(4%)	3(3%)
LM:	2(2%)		2(2%)	11(13%)	1(4%)	12(11%)
ML:	5(6%)		5(5%)	17(20%)	1(4%)	18(16%)
Sum:	90	20	110	85	25	110

Two hosts of YR, interestingly, produced an identical number (110) of statements in the recordings. There was no difference between the two in the kinds and variety of the tones produced. The male host produced L more often than the hostess (71% vs. 49%), while the latter chose to use complex tones much more frequently (27% vs. 6%) than the former. The two produced M and F with comparable frequencies.

Table 10. Show-hosts' Use of Boundary Tones in Statements in TJ

	(M)			(F)		
	C	A	total	C	A	total
L:	56(63%)	21(68%)	77(64%)	46(67%)	10(50%)	56(63%)
M:	16(18%)	8(26%)	24(20%)	10(14%)	6(30%)	16(18%)
F:	4(4%)		4(3%)	2(3%)	1(5%)	3(3%)
LM:	12(13%)	1(3%)	13(11%)	7(10%)	1(5%)	8(9%)
ML:	1(1%)	1(3%)	2(2%)	4(6%)	2(10%)	6(7%)
Sum:	89	31	120	69	20	89

No significant difference was observed in sentence-final tone marking between two hosts of TJ, both radio announcers. Only the female show-host produced a slightly higher percentage of complex tones than her male partner (16% vs. 13%). Figure 1 was drawn based on the sums of numbers on Tables 8, 9, and 10. The figure shows that the low tone was produced generally more often by the males, and that complex tones were visibly more favored by the females, while no significant difference was observed in the use of M and F.

The talk-show hosts produced L more often in announcement-type sentences than statements of conversational type (see Table 11). It can also be seen from the percentages that they tend to use complex tones less

frequently in announcements than in the other type. A smaller inventory of tones is observed as well for announcements than in more conversational statements, though it is possible that this is due to a smaller sample.

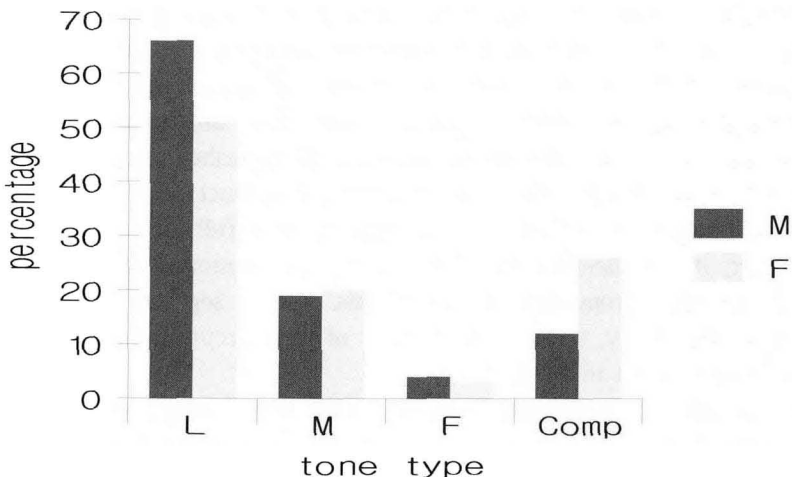


Figure 1. Show-hosts' use of boundary tones in statements of Study 2.

Table 11. Show-hosts' Use of Boundary Tones in two Different Statement Types

	C	A
L:	299(56%)	104(68%)
M:	100(19%)	33(21%)
F:	20(4%)	4(3%)
LM:	63(12%)	4(3%)
ML:	44(8%)	9(6%)
MLM	3(.5%)	
LML:	7(1%)	
MLML:	2(.3%)	
Sum:	538	154

NB: C and A refer to conversational and announcement types, respectively.

Unfortunately the relationship between different endings and sentence-terminal tones could not be examined in this study. Over 40 different sentence endings used in connection to different honorific levels were observed in the data, failing to provide enough numbers of tokens for

systematic analysis of these endings.

analysis of tones used in exclamatories

Korean linguists are divided as to whether the exclamatory sentence should be classified as a separate sentence type in Korean like in English. Some claim that it should, while others' suggestion is that it is just a subtype of the declarative sentence. Korean exclamatory sentences do not have a unique sentence structure as observed in English exclamatories. Korean declaratives and exclamatories are distinguished from each other not by different syntactic structures but by distinct sentential endings (i.e., declarative vs. exclamatory endings). Meaningfully or intonationally, however, it was deemed that the exclamatory sentence can be considerably different from ordinary statements. Thus a separate analysis was made in this study, though the number of their occurrences is not large. Results are shown in Table 12.

Seven different sentence-ending boundary tones were produced when the show-hosts intonationally marked the ends of exclamatory sentences.⁸⁾ This inventory of tones is larger than the number (i.e. 5) of tones observed in the statements of the shows YR (Table 9) and TJ (Table 10), which is striking when the small number of exclamatories in the data is considered. The male hosts marked the sentences most frequently with M, while L and LM were most favored by the female hosts. Though I cannot make confident generalizations because of a small size of the sample, these are rather different results from those obtained from the statements of this study, where the low (L) was dominant across speakers. (It is to be noted that the results of study 1 based on read speech, on the other hand, exhibited males' dominant use of M especially in beginning turns of conversation.)

8) Most of the exclamatories had sentential endings of *-kunyo*, *-keodeunyo*, and *-eoyo*. For instance, the following exclamatories were observed in the data.

-kunyo: keureon arojeom-i iss-eusi-kunyo.
such difficulty-Subj present-Hon-Excl.

"You have such difficulties!" (female host of JR)

-keodeunyo: keubun-eun nu-ka pwa-to jeongmal yep'eu-keodeunyo.
that person-Top anyone-Subj see-even if really pretty-Excl

"Anybody who sees that person says that she is pretty!" (male host of YR)

-eoyo: oneul koengianghi chuw-eoyo
today severely cold-Excl

"It is very cold today!" (female host of TJ)

Table 12. Subjects' Use of Boundary Tones in Exclamatory Sentences

	(M) ^a				(F) ^b			
	Mj	My	Mt	total	Fj	Fy	Ft	total
L:	3	1	4	8(22%)	3	4	2	9(28%)
M:		7	8	15(41%)		3	1	4(13%)
F:			2	2(5%)	1			1(3%)
LM:	1		2	3(8%)	6	2	1	9(28%)
ML:			3	3(8%)	1	3		4(13%)
LML:	6			6(16%)	2		2	4(13%)
MLM:						1		1(3%)
Sum:	10	8	19	37	13	13	6	32

NB: ^aMj, My, and Mt refer to the male hosts of JR, YR, and TJ, respectively.
^bFj, Fy, and Ft are the female partners of Mc, My, and Mc, respectively.

Another noticeable difference between the two sexes is found in the frequency of the speakers' use of complex tones. Among the tones listed in Table 12, LM, ML, LML, and MLM are complex, and thus male and female speakers produced complex tones 56% and 32% of the time, respectively (again F is not analyzed here as complex for the same reason stated earlier). The cross-gender difference based on the observed frequencies of simple and complex tones were statistically significant ($\chi^2=3.961$, $p<.05$, $df=1$), meaning the females' significantly more common use of complex tones over the males in exclamatories as well.

4.4. Discussion

One result of study 2 similar to the findings from study 1 is women's more frequent use of complex tones than men. The percentages of complex tones found in the three shows are 12% for males and 27% for females overall (see Figure 1), and those for each show in the male-female order were 16% vs. 31% in JR, 6% vs. 27% in YR, and 13% vs. 16% in TJ. Though the hosts of TJ do not show a statistically significant difference in their frequency of complex tone production, a clear difference, as a whole, was observed between the two sexes in this study as well.

However, individual differences were also observed. Though it is not possible to compare the percentages directly since the speakers did not utter identical sentences, the numbers indicate the probability that there can be considerable variability within each gender group, which means that some males may adopt complex tones to end sentences in higher

frequencies than some females. This appears in the results of the present study as well; the male host of JR produced a slightly higher percentage (16.3%: 17/104) of complex tones than the female host of TJ (15.7%: 14/89).

Another noticeable difference observed in the results of study 2 was that the low tone tended to be used more often by males than females. This result generally agrees to the previous claims and observations by researchers and also with our general associations of the low tone with masculinity and assertiveness. F, another tone that I proposed as associating with assertiveness, did not reveal a significant difference between the two genders. The males, however, showed higher frequencies of F use than the females in both study 1 (4.0% vs. 2.9%) and study 2 (4.2% vs. 2.8%). The less than clear difference may be due to a small sample (i.e., small number of tokens of F tones in the data) or to the fact that F is not utilized as often as tones like L or M by speakers. No significant cross-gender difference was observed in the realizations of M either.

Only the hostess of JR produced a wider variety of tones than her male cohost, failing to provide a clear support to some researchers' claim that females have a larger inventory of boundary tones than males. A similar result was obtained in study 1 as well. One interesting fact is that the female show-hosts showed the tendency to display a wider array of boundary tones in their production of announcements (Tables 8-10) and exclamatories (Table 12) than the males. It is an issue to be examined whether women have a wider variety of boundary tones than men in some specific types of texts and utterances.

While the average percentage of the show-hosts' finishing conversational statements with L was 56% (male:62%; female:49%) in this study, the percentage of their ending announcements with the same tone was 68% (male:82%; female:58%). This result seems to reflect broadcasters' general tendency to mark the end of announcements intonationally with low tones as we often observe in news and documentaries, for instance. A smaller inventory of terminal tones and a lower percentage of complex tones found with announcement-type statements are also deemed as originating from their rather fixed (or limited) functions in discourse.

In exclamatory sentences, a relatively wide variety of tones, i.e., seven tones, were observed. This inventory is larger than that of announcements, though the number of exclamatories was much smaller than the latter (69 vs. 154); we should also note that only eight sentence-terminal

tones were observed from all the statements (692) in this study. This result seems to have stemmed from an emotional nature of exclamatories: i.e., more diverse intonational markers may be in order to express your emotion(s).

There are some other notable findings concerning exclamatories. First, the frequency of L is smaller in exclamatories than in declaratives, while mid and complex tones, and complex tones appear more frequently in the data of males and females, respectively. This result may be due to attitudinal meanings typically expressed by the low tone, i.e., definitiveness or coolness. It is presumed that the meanings may be less likely to be intended by speakers, when they produce an exclamatory type of utterances.

The fact that the males adopted M more often in exclamatories than in statements seems to suggest that it is more suitable to an expression of emotions than the low, which seems to help convey meanings of coolness and objectivity rather than subjective exclamatory feelings. Women's preference of complex tones is again supported in the exclamatory data: the female show-hosts produced a clearly higher rate of complex tones than the males.

5. Sociolinguistic Implications

This research has examined possible genderlectal differences in speakers' use of sentence-final boundary tones among a number of candidates where such differences might be observed in Korean. Along with wider pitch range on the part of women (McConnell-Ginet, 1983; Takefuta, Jancosek, and Brunt; 1972), Henton (1989) suggests that speakers' manipulations of intensity, duration, and fundamental frequency could also affect hearers' identification of talkers and formation of images about speakers.⁹⁾ Thus the intonational feature examined here may not be the most representative among the potentially sex-differentiating phonetic characteristics.

One important finding from this research is a more common use of

9) The important role of fundamental frequency and frequency range in the identification of speakers' gender is well-known; McConnell-Ginet (1983) also cites more marked amplitude changes as one of the cues to female voice perception.

complex utterance-final tones by women than men. This result supports Crystal's (1971) claim about "a more frequent use of complex tones", which was partially supported by the study reported in McConnell-Ginet (1983), where her American female subjects produced the fall-rise (LM, in my system) more frequently than the males.

The question we now have to address is, then, why (Korean) women have the tendency to adopt complex utterance-final tones more often than men? This question seems to be closely related to what are common or shared attitudinal meanings carried by these sentence-ending tones in Korean.

Complex tones, generally, seem to sound less blunt and rigid than simple tones because the f_0 curve reaches its ultimate goal (or target) not directly but in a roundabout way. They are, if compared to questions, indirect queries rather than straight questions. In some sense a use of complex terminal tones can be compared to a use of euphemisms. Hence, ML sounds warmer than L; LM is softer than M; MLM and LML sound more casual and friendly than M or L, respectively. The relationship between ML and LML and that between LM and MLM are not yet clear and need further research based on perception tests, though the data examined in this study seem to indicate that triple tones are also a feature of female speech and generally sound more casual and playful than double tones.

Warmness and friendliness expressed by speakers can be interpreted as being more cooperative to their conversational partners. Thus the findings of this research can be construed as women showing a more cooperative attitude than men to whom they talk to, supporting, hence, Coates' (1995) and Tannen's (1993) claim that women's speech has more cooperative style with its focus more on solidarity and connection to listeners rather than competition or separateness.

However, it is not clear whether the findings support the two researchers' difference model of explaining genderlectal differences, which takes the position that the differences simply originate from distinct subcultures where men and women are raised. Genderlectal differences could, possibly, come from power asymmetry that exist between the two sexes, as often suggested by supporters of the dominance model (of explaining gender differences) like Cameron (1995) and Uchida (1999), who attribute many of genderlectal differences to male dominance in the society.

The relevant question that needs to be asked here and that is likely to be raised by feminist linguists is whether a use of complex tone is a feature of powerless speech. This is a question that I cannot answer at the moment with certainty. It does not seem to me that in Korea, males without power use this feature notably more commonly than others who possess power. The opposite phenomena, however, appear feasible according to my observations: powerful women may adopt the feature less frequently than other women, especially when they talk to younger men or their subordinates at work.

A use of complex tone, nevertheless, does not seem to be a power indicator in itself. It is, probably, more accurate to interpret its use as aimed at expressing friendliness to the listener(s), thus helping to make their utterances sound softer and warmer. As mentioned earlier, however, not all women use this feature more frequently than men. It is possible that some men use this intonational feature more often than some women, just like smile, another feminine feature of showing friendliness and warmth, is adopted more often by some men than by some women. It should also be stressed that women's use of complex tones is sensitive to linguistic context and also to factors of situational context, the most important of which is, probably, who is the addressee.

6. Conclusions

One consistent finding was obtained in this research. It is the tendency for Korean females to adopt a more frequent use of complex tones over Korean males. Identical results were obtained from both studies of the current research and for both statement and exclamatory data. It needs to be stressed, however, that the two studies are still based on relatively restricted numbers of speakers and a limited scope of data. The findings of this paper, accordingly, need to be further investigated and confirmed by future research extending its scope to other types of sentences on the basis of data from a larger number of speakers.

We have seen that the cross-gender tonal difference revealed lies in occurrence frequencies of tones. No categorical (i.e., presence vs. absence) differences were found as with linguistic variables commonly examined in investigations of quantitative sociolinguistics. It was also shown earlier that the tonal variable examined has both internal conditioners (e.g.,

textual context and sentence type) and external constraints (e.g., gender effects) on its variation. In this regard, it can be stated that Korean utterance-terminal tones showed patterns of variation comparable to those observed in sociolinguistic variation analyzed within the Labovian quantitative paradigm.

Another point made earlier is that not all people are expected to show cross-gender differences in sentence-ending boundary tones. As observed in previous sociolinguistic investigations (e.g., Labov, 1963), linguistic features taken by speakers tend to be a result of whom they identify themselves with or what type of person they project themselves as; i.e., their sociolinguistic behavior tends to be acts of identity (Le Page & Tabouret-Keller, 1985). It is, accordingly, presumed that those women who regard and desire to present themselves as more feminine, will have the tendency to use a higher frequency of complex tones than other women.

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Appendix

Dialogues (16 four-turn and 17 three-turn) constructed for Study 1

1.

B. minsu-ka ipəne jəŋhwa-lil hana mantil-əs'-tæ.
Minsu-Subj this time movie-Obj one make-Pst-I heard
"Minsu made a movie this time, I heard."

A. ət'an næjəŋ-i-nci a-ni?
what content-Cop-P know-Int
"Do you know what the story of that movie is?"

B. han kunin-e pikikcək sæŋæ-lil kili-n cakp^hum-i-læ.
a soldier-Pos tragic life-Obj describe-AdjP work-Cop-I heard
"It is a work which describes the tragic life of a soldier, I heard."

2.

A. jociŋ na-n salam-til-etæhæ silmaŋ-il manhi h-æ.
nowadays I-Top person-Pl-about disappointment-Obj much do-Decl
"Nowadays I am very disappointed about people."

B. nælpin maiŋ-il salam-til-i kacj-əs'-tamjən coh-inte.
broad mind-Obj person-Pl-Subj have-Pst-if good-Decl
"It would be good if people had a broad mind."

A. kiləke mal-ja.
right words-Cop-Decl
"That's right."

B. kikəs-i cuŋjohan kəs kat^h-a.
it-Subj important seem to-Decl
"It seems to be important."

3.

B. na ipəne han jəu-etæhan uhwa-lil s'-əs'-ə.
I this time a fox-about fable-Obj write-Pst-Decl
"I wrote a fable about a fox this time."

- A. ət'ən jækɪ-nte?
 what kind story-Int
 "What kind of story is it?"
- B. ki jəu-ka pjəlakpuca-ka twe-nɪn ijaki-j-a.
 the fox-Subj upstart-Comp become-AdjP story-Cop-Decl
 "The fox becomes an upstart in that fable."
- 4.
- A. nə-n ət'ən kjecəl-i ceil coh-ni?
 you-Top which season-Subj most likeable-Int
 "What season do you like best?"
- B. jəlɪm-i na-n ceil coh-a.
 summer-Subj I-Top most likeable-Decl
 "I like summer best."
- A. jəlɪm-pota na-n pom-i tə nas-tə-la.
 summer-than I-Top spring-Subj more good-R-Decl
 "I like spring better than summer."
- B. sampoktəwi t'æ-nɪn com kwelop-ci.
 dogdays-Top slightly troublesome-Decl
 "Dogdays of summer can be a slight trouble."
- 5.
- A. Ol-kail-e-nɪn uli hamk'e muənka-lil hæ po-ca.
 this fall-Loc-Top we together something-Obj do try-Hort
 "Let's do something together this fall."
- B. iŋ. koun nolæ-lil jep'i-ke hana mantil-ə po-ca.
 yes pretty song-Obj pretty-AdvP one make-AdvP try-Hort
 "Yes. Let us make a pretty song *prettily*."
- A. cohɪn sæŋkak-i-ja.
 good idea-Cop-Decl
 "That's a good idea."
- B. kilən nolæ-ka is'imjən uli maim-to kop-ke twel-kə-ja.
 such song-Subj present-if our heart-also pretty-AdvP become-Decl
 "If we have such a song, our heart will also become pretty."
- 6.
- B. minsu-ka ipəne han kunin-etæhan jəŋhwa-lil mantil-əs'-tæ.
 Minsu-Subj this time a soldier-about movie-Obj make-Pst-I heard
 "Minsu made a movie about a soldier this time, I heard."

- A. ət'ən næjɔŋ-i-nci a-ni?
 what content-Cop-P know-Int
 "Do you know what the story of that movie is?"
- B. ki kunin-e pikikcək sæŋæ-lil kili-n cakp^hum-i-læ.
 the soldier-Pos tragic life-Obj describe-AdjP work-Cop-I heard
 "It is a work which describes the tragic life of the soldier, I heard."
- 7.
- A. nə-n ət'ən jəŋhwa coh-a ha-ni?
 you-Top what kind movie like-AdvP do-Int
 "What kind of movies do you like?"
- B. æcəŋ jəŋhwa-ka na-n coh-a.
 love movies-Subj I-Top like-Decl
 "I like love movies."
- A. k^hometi jəŋhwa-nin ət'ə-ni?
 comedy movies-Top how-Int
 "How do you like comedy movies?"
- B. kimhjəŋkon jəŋhwa-nin na-n silh-ə.
 Kim Hyeonggon movies-Top I-Top dislike-Decl
 "I dislike Kim Hyeonggon-kind movies."
- 8.
- B. na ipəne uhwa-lil hana s'-əs'-ə.
 I this time fable-Obj one write-Pst-Decl
 "I wrote a fable this time."
- A. ət'ən uhwa-nte?
 what kind fable-Int
 "What kind of fable is it?"
- B. han jəu-ka pjəlakpuca-ka twe-nin ijaki-ja.
 a fox-Subj upstart-Comp become-AdjP story-Decl
 "A fox becomes an upstart in that fable."
- 9.
- A. nə kuntæ əti ka-s'-ta was'-ni?
 you army where go-Pst-P return-Int
 "Where did you serve as a soldier?"
- B. na koŋkun caŋkjo hæ-s'-ə.
 I airforce officer serve-Pst-Decl
 "I served as an air force officer."

A. ətʰisə kʰɪnmu hæ-s'-nɪnte?

where service do-Pst-Int

"Where (At what unit) did you serve?"

B. pʰjəŋtʰæk koŋkunkici-esə kʰɪnmuhæ-s'-ə.

Pyeongtaek air base-Loc serve-Pst-Decl

"I served at Pyeongtaek air base."

10.

B. na jociɪm nolæ hana-l mantɪl-ko is'-ə.

I nowadays song one-Obj make-AdvP Prog-Decl

"I am writing a song these days."

A. ət'ən nolæ-nte?

what kind song-Int

"What kind of song is it?"

B. han inə-ka waŋca-eke salaŋ-il pʰjohjənhə-nɪn nolæ-ja.

a mermaid-Subj prince-Dat love-Obj express-AdjP song-Decl

"A mermaid expresses her love for a prince in that song."

11.

A. jəksasaŋ-e kacaŋ him-i se-s'-tə-n salam-in nuku-lk'a?

history-Loc most power-Subj strong-Pst-R-AdjP person-Top who-Int

"Who could have been the strongest person in history?"

B. haŋu-caŋsa-ci.

Hangu-general-Decl

"It is the general Hangu."

A. haŋu-pota tə himsen salam-in əps-əs'-ɪlk'a?

Hangu-than more strong person-Top absent-Pst-Int

"Wasn't there a stronger person than Hangu?"

B. kɪlse.

I'm not sure

"I'm not sure."

12.

B. næ tu-pən-c'æ hɪkok-i kəcin wansəŋtwe-s'-ə.

my second drama-Subj almost finished-Pst-Decl

"I almost finished my second drama."

A. ət'ən culkəli-ci?

what story-Int

"What is its story like?"

- B. han mæŋin-i nun-il t'i-ke twe-nin ijaki-ja.
 a blind man-Subj eye-Obj open-AdvP come to-AdjP story-Decl
 "A blind man opens his eyes in the story."

13.

- A. uli nala-esə ceil inkiis'nin sip^hoc^hi-nin mwə-lk'a?
 our country-Loc most popular sport-Top what-Int
 "What is the most popular sport in our country?"
- B. p^hilojaku-kes'-ci.
 professional baseball-P-Decl
 "It is professional baseball."
- A. jaku-ka c^hukku-pota tə inkiis'-na?
 baseball-Subj soccer-than more popular-Int
 "Is baseball more popular than soccer?"
- B. wəltik^həp-i jəlli-l t'æ-lil ceweha-mjən ki-læ.
 World Cup-Subj open-AdjP time-Obj exclude-if so-Decl
 "It is except when the World Cup is taking place."

14.

- A. ipən kail-e-nin muənka-lil hæ po-ko sip^h-inte.
 this fall-Loc-Top something-Obj try-AdvP want to-Decl
 "I want to do something this fall."
- B. atamhan pjəlcəŋ-il ci-ə po-ci ki-læ?
 little villa-Obj build-AdvP why not try to
 "Why don't you build a little villa?"
- A. kəkə kwenchanhin sæŋkak-i-nte.
 that good idea-Cop-Decl
 "That is a good idea."
- B. jep'in pjəlcəŋ-in ne maɪm-il p^hukinha-ke ha-lkə-ja.
 pretty villa-Top your heart-Obj warm-AdvP make-thing-Decl
 "A pretty villa will make you feel warm (and cozy)."

15.

- B. kotɪŋhakkjo sicəl-i sæŋkak-i na-n-ta.
 highschool days-Subj remembrances-Subj come-Pres-Decl
 "My highschool remembrances are coming to me."
- A. nə-n c^ham mals'əŋk'uləki-jəs'-ci.
 you-Top really troublemaker-Cop-Pst-Decl
 "You were really a troublemaker."

- B. nə-n mopəmsæŋ-i-əs'-ko?
 you-Top model student-Cop-Pst-Int
 "And you were a model student?"

16.

- A. mikuk-in ət'ən nala kat^h-a?
 America-Top what country seem to-Int
 "What kind of country is America?"
- B. acu cæmiis'nin nala-ja.
 very interesting country-Decl
 "It is a very interesting country."
- A. ət'ən cəm-esə?
 what aspect-Loc
 "In what aspects?"
- B. jələ incoŋ-i hamk'e sa-n-tanin kəs-i cæmiis'-ə.
 various race-Subj together live-Pres-AdjP fact-Subj interesting-Decl
 "It is an interesting country in that various races live together."

17.

- A. nə sæŋsən-il cohaha-ntamjə.
 you fish-Obj like- I hear
 "I hear that you like to eat fish."
- B. wantosan iŋə-lil na-n cohah-æ.
 Wando-produced carp-Obj I-Top like-Decl
 "I like Wando-produced carps."
- A. com si-ci anh-a?
 slightly sour-AdvP not-Int
 "Aren't they a little too sour?"
- B. iŋ. haciman kak'im mək-ɨmjən kŋŋkaŋhæ-ci-nin nɨk'im-i-ja.
 yes but sometimes eat-if healthy-become-AdjP feeling-Cop-Decl
 "Yes. But when I eat them sometimes, I feel as if I become healthy."

18.

- B. cinu-ka sosəl-il hana s'-əs'-tæ.
 Cinu-Subj novel-Obj one write-Pst-I heard
 "I hear that Cinu wrote a novel."
- A. ət'ən nəjəŋ-i-ci?
 what content-Cop-Int
 "What is the content of the novel like?"

- B. han jəŋuŋ-i nacuŋe cewaŋ-i twe-nin ijaki-læ.
 a hero-Subj later king-Comp become-AdjP story-I heard
 "A hero becomes a king later in the novel, I heard."

19.

- B. nəhji-cip kaŋaci cal is'-ni?
 your house puppy well present-Int
 "Is your puppy doing well (these days)?"
- A. kiləm. nə-ka əlmana kwijəw-ə ha-njinte.
 yes I-Subj how cherish-AdvP do-Decl
 "Yes. You know how much I cherish it."
- B. nə-n kæ-lamjən sacuk-il mos-s'-tə-la.
 you-Top dog-if four limbs-Obj not-use-R-Decl
 "You seem to love any if it is a dog."

20.

- A. nals'i-ka we iləh-ke təp-ci?
 weather-Subj why like-AdvP hot-Int
 "Why is the weather this hot?"
- B. kils'e. siwənhən əlim-mul-i is'-imjən coh-kes'-ta.
 I don't know cool ice-water-Subj exist-if good-P-Decl
 "I don't know. It would be good if there were ice-water."
- A. we? nəŋsujok-il ha-ljə-ko?
 why cold bath-Obj do-Vol-Int
 "Why? Do you want to have a cold bath?"
- B. anija. siwənhən əlim-mul-il com masi-ljə-ko.
 no cool ice-water-Obj some drink-Vol-Decl
 "No. I want to drink some cool ice water."

21.

- B. na han manjə-etəhan kakik-il mantil-əs'-ə.
 I a witch-about opera-Obj make-Pst-Decl
 "I made an opera about a witch."
- A. ət'ən nəjəŋ-i-nite?
 what content-Cop-Int
 "What is the story of the opera like?"
- B. ki manjə-ka minam c^həŋnjən-il juhokha-nin jæk-i-ja.
 the witch-Subj handsome young man-Obj seduce-AdjP story-Decl
 "The witch seduces a handsome young man in the story."

22.

- A. kimtæcuŋ-i jocim tæ^hoŋljəŋ cal han-i?
Kim Daejung-Subj presently President well serve-Int
“Is Kim Daejung doing well as President?”
- B. jocim inki-ka kwenc^hanin kəs kat^h-a.
presently popularity-Subj all right seem to-Decl
“He seems to enjoy good popularity presently.”
- A. ki inki-ka cisoktwe-lk’a?
that popularity-Subj last-Int
“Do you think his popularity will last?”
- B. kəkə-ja moli-ci.
that-P don’t know-Decl
“Nobody knows.”

23.

- A. na jocim untoŋ-i p^hiljohan kəs kat-a.
I nowadays exercise-Subj necessary seem to-Decl
“Nowadays I seem to need exercise.”
- B. kapjəun taliki-ka kəŋkaŋ-e coh-a.
light running-Subj health-for good-Decl
“Light running is good for health.”
- A. ki-læ?
so-Int
“Is that so?”
- B. iŋ. taliki-lil ha-mjən mom-e jələ kacilo coh-a.
yes running-Obj do-if body-to variously good-Decl
“Yes. If you do running, it is very good to your body in many ways.”

24.

- B. næ tu-pən-c’æ hɛikok-in han mæŋin-etæhan ijaki-ja.
my second drama-Top a blind man-about story-Decl
“My second drama is a story about a blind man.”
- A. æt’əhke jæki-ka cinhæŋtwe-ci?
how story-Subj proceed-Int
“How does the story go?”
- B. ki mæŋin-i nun-il t’i-ke twe-nin ijaki-ja.
the blind man-Subj eye-Obj open-AdvP come to-AdvP story-Decl
“The blind man opens his eyes in the story.”

25.

- A. kwail-i ta masis'nin kəs-in ani-ci?
 fruit-Subj every tasty thing-Top not-Int
 "Not every fruit is tasty, right?"

- B. iŋ. panana-ka na-nin silh-æ.
 yes banana-Subj I-Top hate-Decl
 "Yes. I dislike banana."

- A. t^hikpjalhan iju-ka is'-ni?
 special reason-Subj exist-Int
 "Is there a special reason for that?"

- B. səlikin panana-lil mək-ımjən na-n cal c^heh-æ.
 unripe banana-Obj eat-if I-Top easily have a stomachache-Decl
 "When I eat unripe banana, I easily have a stomachache."

26.

- B. nə-n ət'ən sək-il cohaha-ni?
 you-Top what color-Obj like-Int
 "What color do you like?"

- A. na-n jep'in cuhoŋsæk-il cohah-æ.
 I-Top pretty scarlet-Obj like-Decl
 "I like pretty scarlet."

- B. na-n polasæk-i coh-'inte.
 I-Top violet-Subj like-Decl
 "I prefer violet."

27.

- B. cinu-ka han jəŋuŋ-etəhan sosəl-il s'-əs'-tæ.
 Jinu-Subj a hero-about novel-Obj write-Pst-I heard
 "I hear that Jinu wrote a novel."

- A. ət'ən nəjəŋ-i-ci?
 what content-Cop-Int
 "What is the content of the novel like?"

- B. ki jəŋuŋ-i nacuŋe cewaŋ-i twe-nin iyaki-læ.
 the hero-Subj later king-Comp become-AdjP story-I heard
 "The hero becomes a king in the novel, I heard."

28.

- A. nə-n acikto æki-kat^h-kuna.
 you-Top still baby-like-Excl
 "You are still like a baby."

B. iŋ. inhjəŋ-i na-n acikto coh-a.
 yes doll-Subj I-Top still like-Decl
 "Yes. I still like dolls."

A. cəŋmal ki-læ?
 really so-Int
 "Really?"

B. jep'in inhjəŋ-i næ p^hum-an-e is'imjən na-n hæŋpokh-æ.
 pretty doll-Subj my bosom-Loc present-when I-Top happy-Decl
 "When I have a pretty doll in my bosom, I am happy."

29.

B. na jocim han inə-etəhan nolæ-l mantil-ko is'-ə.
 I nowadays a mermaid-about song-Obj make-AdvP Prog-Decl
 "I am writing a song about a mermaid these days."

A. ət'ən næjəŋ-i-nte?
 what content-Cop-Int
 "What's its content like?"

B. ki inə-ka wəŋca-eke salaŋ-il p^hjohjəŋha-nin nolæ-ja.
 the mermaid-Subj prince-Dat love-Obj express-AdjP song-Decl
 "The mermaid expresses her love for a prince in that song."

30.

B. nə-n nuku-l ceil conkjəŋha-ni?
 you-Top who-Obj most respect-Int
 "Whom do you respect most?"

A. uli apəci, əməni.
 our father mother
 "My father and mother."

B. cəŋmal nə-n hæŋpokhan salam-i-ta.
 really you-Top happy person-Cop-Decl
 "You are really a happy person."

31.

B. na ipəne kakik-il hana mantil-əs'-ə.
 I this time opera-Obj one make-Pst-Decl
 "I made an opera this time."

A. ət'ən næjəŋ-i-nte?
 what content-Cop-Int
 "What is the story of the opera like?"

- B. han manjə-ka minam c^həŋnjən-il juhokha-nin jæki-ja.
 a witch-Subj handsome young man-Obj seduce-AdjP story-Decl
 "A witch seduces a handsome young man in the story."

32.

- B. onil nals'i-ka muc^hək c^hup-ci?
 today weather-Subj much cold-Int
 "Isn't it very cold today?"
- A. kjəul nals'i-ka kiləh-ci mwə.
 winter weather-Subj so-Decl what else
 "That is the winterday weather."
- B. kilæto onil-in com simhan kəs kat^h-a.
 still today-Top a little severe seem to-Decl
 "Still it seems a little excessively cold today."

33.

- A. nə toŋmul-il cohaha-ni?
 you animal-Obj like-Int
 "Do you like animals?"
- B. na-n jəu-ka coh-a.
 I-Top fox-Subj like-Decl
 "I like foxes."
- A. kilæ? na-n jəu-ka silh-inte.
 really I-Top fox-Subj dislike-Decl
 "Really? I dislike foxes."
- B. na-n jəu-e cihje-ka coh-a.
 I-Top fox-Pos wisdom-Subj like-Decl
 "I like the wisdom of foxes."

Abbreviations:

AdjP : adjectival particle	AdvP : adverbial particle
Comp : complement marker	Cop : copula
Dat : dative marker	Decl : declarative ending
Hort : hortative ending	Int : interrogative ending
Loc : locative marker	Obj : objective marker
P : particle	Pl : plural marker
Pos : possessive marker	Pres : present marker
Prog : progressive	Pst : past marker
R : recollectional ending	Subj : subjective marker

Top : topic marker

Vol : volition marker

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